

What is Claimed is:

1. A messaging system, comprising:
 - a client device having stored therein a client application, which is adapted to be executed by said client device;
 - a server having stored therein a server application, which is adapted to be
 - 5 executed by said server;
 - a plurality of wireless networks, each of which is adapted to:
 - communicate messages between said client device and said server;
 - and
 - support one or more wireless network protocols;
 - 10 a protocol gateway encapsulating a fundamental network protocol, which underlies each of said one or more wireless network protocols and includes a protocol stack that corresponds substantially to an Open System Interconnection (OSI) model and incorporates a simple network transport layer (SNTL); and
 - means for communicating a message between said client application and
 - 15 said server application, over a selected wireless network protocol through said protocol gateway, independent of said selected wireless network protocol.
2. The messaging system according to claim 1, wherein said SNTL maps to layer 4 of said OSI model.
3. The messaging system according to claim 1, wherein said protocol stack further comprises:
 - an application layer mapped to layer 7 of said OSI model;
 - a network layer mapped to layer 3 of said OSI model;
 - 5 a data link layer mapped to layer 2 of said OSI model; and
 - a physical layer mapped to layer 1 of said OSI model.

4. The messaging system according to claim 3, wherein said application layer comprises means for providing an interface between a client application and said SNTL such that said client application is adapted to send and receive messages across said plurality of wireless networks without having any knowledge of a communication implementation.

5. The messaging system according to claim 4, wherein said client application is selected from the group consisting of one or more e-mail applications, one or more file transfer applications, and a plurality of end user applications.

6. The messaging system according to claim 3, wherein said network layer comprises means for providing network protocol layer functionality and hiding the details of said functionality from said SNTL.

7. The messaging system according to claim 6, wherein said network layer comprises an Internet Protocol (IP).

8. The messaging system according to claim 3, wherein said data link layer and said physical layer are together adapted to comply with a public switch telephone network protocol.

9. The messaging system according to claim 3, wherein said data link layer and said physical layer are together adapted to comply with a cellular digital packet data protocol.

10. The messaging system according to claim 3, wherein said data link layer and said physical layer are together adapted to comply with a Mobitex protocol.

11. The messaging system according to claim 3, wherein said data link layer and said physical layer are together adapted to comply with a RIM protocol.

12. The messaging system according to claim 3, wherein said data link layer and said physical layer are together adapted to comply with an ARDIS protocol.

13. The messaging system according to claim 3, wherein said data link layer and said physical layer are adapted to comply with a GPRS protocol.

14. The messaging system according to claim 3, wherein said data link layer and said physical layer are adapted to comply with a GSM protocol.

15. The messaging system according to claim 3, wherein said data link layer and said physical layer are adapted to comply with said selected wireless network protocol.

16. The messaging system according to claim 3, wherein said data link layer and said physical layer are adapted to comply with a wireless network protocol selected from the group consisting of a public switch telephone network protocol, a cellular digital packet data protocol, a Mobitex protocol, an ARDIS protocol, a RIM protocol, a GPRS protocol, and a GSM protocol.

17. The messaging system according to claim 1, wherein said SNTL includes a connectionless UDP-like transport protocol having substantially all of the features and advantages of TCP.

18. The messaging system according to claim 17, wherein said features are selected from the group consisting of message segmentation, message segment reassembly, message retries, and message duplication.

19. The messaging system according to claim 17, wherein said SNTL includes a transport header having a preselected width.

20. The messaging system according to claim 19, wherein said preselected width comprises about four to six bytes.

21. The messaging system according to claim 19, comprises a single segment message header.

22. The messaging system according to claim 19, comprises a multiple segment message header.

23. The messaging system according to claim 19, wherein said transport header further comprises:

a first field adapted to indicate a version number of a segment header;

5 a second field adapted to indicate a message identification value, which is adapted to discard segment/message duplications and to match acknowledgments with messages;

a third field adapted to indicate protocol information;

a fourth field adapted to indicate a total number of bytes contained in a message segment to be sent including said segment header; and

10 a fifth field adapted to indicate a number of each said message segment.

24. The messaging system according to claim 23, wherein said first field comprises two bits.

25. The messaging system according to claim 23, wherein said first field comprises bit 0 and bit 1 of a first word in said segment header.

26. The messaging system according to claim 23, wherein said first field comprises a value of from 0 to 3.

27. The messaging system according to claim 23, wherein said second field comprises thirteen bits.

28. The messaging system according to claim 23, wherein said second field comprises bits 2 through 14 of a first word in said segment header.

29. The messaging system according to claim 23, wherein said second field comprises a value of from 0 to 8,192.

30. The messaging system according to claim 23, wherein said third field comprises five bits.

31. The messaging system according to claim 23, wherein said third field comprises bits 15 through 19 of a first word in said segment header.

32. The messaging system according to claim 23, wherein bit 19 of said third field comprises a value indicative of message segmentation.

33. The messaging system according to claim 32, wherein bit 19 comprises a value of 0 where the message is not segmented.

34. The messaging system according to claim 32, wherein bit 19 comprises a value of 1 where the message is segmented.

35. The messaging system according to claim 23, wherein bit 16 of said third field comprises a value indicative of a message type.

36. The messaging system according to claim 35, wherein bit 16 comprises a value of 0 where the message includes a positive acknowledgment.

37. The messaging system according to claim 35, wherein bit 16 comprises a value of 1 where the message includes a negative acknowledgment.

38. The messaging system according to claim 23, wherein bit 15 of said third field comprises a message indicator.

39. The messaging system according to claim 38, wherein bit 15 comprises a value of 0 where the message is an application message.

40. The messaging system according to claim 38, wherein bit 15 comprises a value of 1 where the message is a system message.

41. The messaging system according to claim 23, wherein said fourth field comprises twelve bits.

42. The messaging system according to claim 41, wherein said fourth field comprises bits 20 through 31 of a second word in said segment header.

43. The messaging system according to claim 42, wherein said fourth field comprises a value of from 4 to 4,096.

44. The messaging system according to claim 23, wherein said fifth field comprises eight bits.

45. The messaging system according to claim 44, wherein said fifth field comprises bits 0 through 7 of a third word in said segment header.

46. The messaging system according to claim 44, wherein said fifth field comprises a value of from 2 to 255.

47. The messaging system according to claim 23, wherein said fifth field is adapted to re-order a plurality of message segments into a single complete message.